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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,699	09/11/2003	Fu-Jen Ko	TOP 326	4746

7590 08/19/2005

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EXAMINER	
PARKER, KENNETH	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 08/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/659,699	KO ET AL.	
	Examiner	Art Unit	
	Kenneth A. Parker	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 12/3/03
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al SID DIG '02 in view of Suzuki 20020080320

Liu discloses regarding claims 1 the first part of claims 12 and 16, and the listed dependent claims: a method of forming a transflective liquid crystal display device (with a wide-viewing angle-abstract), comprising the steps of (the steps are the mere recitation of making or providing the parts, so are anticipated by a disclosure of the structure itself)-

providing a first substrate and a second substrate opposite the first substrate (substrates are shown in figure 1B, and must be provided);

forming an insulating layer having an uneven surface on the first substrate (the layer below the electrode must be insulating so as to not short our the device, and is shown with an uneven surface);

forming at least one opening in the insulating layer (the transmissive area in the center); forming a conformal reflective electrode on a sidewall and a bottom of the

opening (there is a transmissive electrode on the sides and hole bottom, reflective on top) and part of the insulating layer,

wherein the reflective electrode has at least one opaque portion and at least one transparent portion, and the transparent portion of the reflective electrode is located in the opening (it is); the transparent portion only is formed in the side wall and the hole. It doesn't say it is on the reflective electrode,

forming a conformal first alignment film on the reflective electrode (not shown, but described in page 559, second paragraph), but that it anchors the liquid crystal perpendicularly, however to do that it has to be on the surfaces confronting the liquid crystal and therefore on the electrode);

forming a common electrode (required for operation, and inherent, however there appears to be an electrode connected to the voltage V shown on the left side of the figure) on an inner surface of the second substrate;

forming a second alignment film on the common electrode (met by the description on page 559 as described above, as the described function requires the confronting surfaces to be coated with the alignment layer);

and filling a space between the first substrate and the second substrate (the liquid crystal is shown, so the step of filling must be performed) with negative type liquid crystal molecules.

However not shown is that it is added with a chiral agent to form a liquid crystal layer.

Chiral material was well known for increasing stability and speed (see Suzuki paragraph 76:

"For the homeotropic alignment, the liquid crystal molecules are rearranged to form a twisted or helical path when a voltage is applied. A chiral agent may be added to stabilize this orientation and increase the response speed."

Therefore one of ordinary skill would have found motivation, reason or suggestion to add chiral material to the liquid crystal for the benefit of increased speed and/or stability).

Regarding claims 4, 11 and 16, the reflective electrode and the common electrode, an asymmetric electric field occurs at a fringe portion of the reflective electrode (the structure is asymmetric as it has an insulation portion and pixel portion, so the field will have to be asymmetric around the border (it is inherent- but also described on the top of page 560). The discussion that the declination defect is shown in the center (figure 2 and associated discussion) implies monodomain in that the disclination is point, not a line

Regarding claims 5 and 12, the opaque portion is reflective electrode is an aluminum layer- page 558 last paragraph "fringe field of Al electrode".

Regarding claims 6 and 13, the transparent portion of the reflective electrode is an ITO (indium tin oxide) layer, as it is labeled ITO in figure 1b.

Regarding claims 7-8, and 13-15, it was well known that rubbing caused static electricity damage, and that non-rubbing techniques could be used to avoid this (such as uv photopolymer alignment and ion bombardment). Therefore it would have been obvious to one of ordinary skill to use non-rubbing alignment techniques to avoid static damage associated with rubbing.

Regarding claims 2 and part of claims 9 and 16, the step of: forming at least one symmetric protruding element on the insulating layer located around the reflective electrode, step of forming the insulating layer also forms the bump, and therefore that portion of that step meets the claim language.

Regarding claims 3 and 10 the symmetric protruding element has a substantially triangular cross-section, and as elements on the pixel scale are really never exact, this element would be viewed as meeting the language by those of ordinary skill.

Allowable Subject Matter

Claims 9- 15 were previously indicated as allowable, but are now rejected upon the new reference found above.

Response to Arguments

Applicant's arguments with respect to the rejected claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A. Parker whose telephone number is 571-272-2298. The examiner can normally be reached on M-F 10:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kenneth A Parker
Primary Examiner
Art Unit 2871